



# UNITED STATES PATENT AND TRADEMARK OFFICE

*[Handwritten signature]*

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/077,662

02/14/2002

Kousaku Okubo

033808/0282102

2972

7590

05/20/2004

Stanley P Fisher  
REED SMITH LLP  
3110 Fairview Park drive  
suite 1400  
Falls Church, VA 22042

EXAMINER

ALLEN, MARIANNE P

ART UNIT

PAPER NUMBER

1631

DATE MAILED: 05/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/077,662	OKUBO ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Marianne P. Allen	1631	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) 1-5, 10, 12 and 16-34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 6-9, 11, 13 and 15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-34 are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____.   |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____.  | 6) <input type="checkbox"/> Other: _____.                                   |

Art Unit: 1631

## DETAILED ACTION

### *Election/Restrictions*

Applicant's election without traverse of claims 6-9, 11, 13, and 15 in the response submitted 2/27/04 is acknowledged.

Claims 1-5, 10, 12, 14, and 16-34 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the response submitted 2/27/04.

### *Information Disclosure Statement*

Applicant is encouraged to file an Information Disclosure Statement.

### *Claim Rejections - 35 USC § 101*

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 6-9, 11, 13, and 15 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 6-9, 11, 13, and 15 are directed to a knowledge database.

The pertinent portions of MPEP 2106 are reproduced below.

#### Nonstatutory Subject Matter

Claims to computer-related inventions that are clearly nonstatutory fall into the same general categories as nonstatutory claims in other arts, namely natural phenomena such as magnetism, and abstract ideas or laws of nature which constitute "descriptive material." Abstract ideas, *Warmerdam*, 33 F.3d at 1360, 31 USPQ2d at 1759, or the mere manipulation of abstract ideas, *Schrader*, 22 F.3d at 292-93, 30 USPQ2d at 1457-58, are not patentable. Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical

Art Unit: 1631

and Electronics Terms 308 (5th ed. 1993).) “Nonfunctional descriptive material” includes but is not limited to music, literary works and a compilation or mere arrangement of data.

Both types of “descriptive material” are nonstatutory when claimed as descriptive material per se. Warmerdam, 33 F.3d at 1360, 31 USPQ2d at 1759. When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and Warmerdam, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory). When nonfunctional descriptive material is recorded on some computer-readable medium, it is not statutory since no requisite functionality is present to satisfy the practical application requirement. Merely claiming nonfunctional descriptive material stored in a computer-readable medium does not make it statutory. Such a result would exalt form over substance. *In re Sarkar*, 588 F.2d 1330, 1333, 200 USPQ 132, 137 (CCPA 1978) (“[E]ach invention must be evaluated as claimed; yet semantogenic considerations preclude a determination based solely on words appearing in the claims. In the final analysis under 101, the claimed invention, as a whole, must be evaluated for what it is.”) (quoted with approval in *Abele*, 684 F.2d at 907, 214 USPQ at 687). See also *In re Johnson*, 589 F.2d 1070, 1077, 200 USPQ 199, 206 (CCPA 1978) (“form of the claim is often an exercise in drafting”). Thus, nonstatutory music is not a computer component and it does not become statutory by merely recording it on a compact disk. Protection for this type of work is provided under the copyright law.

**Functional Descriptive Material: “Data Structures” Representing Descriptive Material Per Se or Computer Programs Representing Computer Listings Per Se**  
Data structures not claimed as embodied in computer-readable media are descriptive material per se and are not statutory because they are not capable of causing functional change in the computer. See, e.g., Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory). Such claimed data structures do not define any structural and functional interrelationships between the data structure and other claimed aspects of the invention which permit the data structure’s functionality to be realized. In contrast, a claimed computer-readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure’s functionality to be realized, and is thus statutory.

**Nonfunctional Descriptive Material:** Descriptive material that cannot exhibit any functional interrelationship with the way in which computing processes are performed does not constitute a statutory process, machine, manufacture or composition of matter and should be rejected under 35 U.S.C.101. Thus, Office personnel should consider the claimed invention as a whole to determine whether the necessary functional interrelationship is provided. Where certain types of descriptive material, such as music, literature, art, photographs and mere arrangements or compilations of facts or data, are merely stored so as to be read or outputted by a computer without creating any functional interrelationship, either as part of the stored data or as part of the computing processes performed by the

Art Unit: 1631

computer, then such descriptive material alone does not impart functionality either to the data as so structured, or to the computer. Such “descriptive material” is not a process, machine, manufacture or composition of matter. (Data consists of facts, which become information when they are seen in context and convey meaning to people. Computers process data without any understanding of what that data represents. Computer Dictionary 210 (Microsoft Press, 2d ed. 1994).)

The policy that precludes the patenting of nonfunctional descriptive material would be easily frustrated if the same descriptive material could be patented when claimed as an article of manufacture. For example, music is commonly sold to consumers in the format of a compact disc. In such cases, the known compact disc acts as nothing more than a carrier for nonfunctional descriptive material. The purely nonfunctional descriptive material cannot alone provide the practical application for the manufacture.

As written, the claims are directed to an arrangement or compilation of data. This is considered to be nonfunctional descriptive material. There are no structural or functional elements recited in the claims such that any functionality can be realized.

Applicant is also directed to the Trilateral Project WM4 Report on Comparative Study on Protein 3-Dimensional (3-D) Structure Related Claims at:

[www.uspto.gov/web/tws/wm4/wm4\\_3d\\_report.htm](http://www.uspto.gov/web/tws/wm4/wm4_3d_report.htm).

Case 1, claim 2; case 2, claim 1; case 7, claim 3; and case 8, claim 1 are similar to the instant claims. It is noted that none of these claims was considered statutory by the U.S. Patent and Trademark Office. Nor were any considered eligible subject matter by the European Patent Office and the Japanese Patent Office. See in particular pages 30-31 and 61-79 of the document.

### ***Claim Rejections - 35 USC § 112***

Claims 6-9, 11, 13, and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Art Unit: 1631

Claim 6 requires object values including “terms for use in a medical field and/or a biological field.” It is unclear what text phrases or words are intended to be included or excluded by this limitation.

Claim 7 recites “the synonym dictionary registering a plurality of objects to be regarded as a same object.” It is unclear whether the synonym dictionary is part of the claimed knowledge database or whether this dictionary function is only used to provide information that is then stored in the knowledge database. Alternatively, the claim could be interpreted that the knowledge database claimed has this functionality. This would be confusing as a database is considered to be a data structure (or collection of data structures) that is empty or holding specific data and not some type of computer program, for example. Claim 9 is similarly unclear.

Claim 8 recites “have relation values previously defined.” It is confusing what limitation is intended by this phrase. The claim is directed to a knowledge database comprising relations between the objects. This would implicitly require that the relation values were previously defined.

Claim 11 is confusing. The relation value between the phrase objects is the frequency of the phrases being close to each other. However, the claims have no limitations to the source of information in the database so it is unclear how to interpret this limitation. It is further unknown what degree of closeness (same document, same paragraph, same sentence?) would meet the limitation of the claim.

Claim 13 is confusing. The claims have no limitation to the source of the information in the database so it is unclear what phrases “included in an index of a book” are intended by the claim. For example, does the claim exclude information extracted from the Genbank database



Art Unit: 1631

which is not a book with an index? Is this dependent claim implying that the database information is extracted from a book that must have an index, pagination, and paragraphs?

Claim 15 is confusing. It is not known what would meet the limitation “similarity of patterns.”

Various claims recite “lingualized knowledge.” It is not known what is meant by this phrase.

Generally, if the claimed database has the objects “DNA” and “sequence” (a plurality of phrase objects) and a relationship value “1” (the quantitative relationship between “DNA” and “sequence”), it is unclear how “1” conveys all of the information/attributes required by the claims. For claim 11, is “1” the frequency of existence of these words being close to each other? For claim 13, is “1” for the same page or the same paragraph? What if the phrases are on both the same page and in the same paragraph? For claim 15, is “1” indicating a degree of similarity between “DNA” and “sequence”? It is unclear from the claim how a single relationship value can convey these different concepts simultaneously.

If these claims were intended to be a product (the knowledge database) produced by a particular process, the claims do not clearly set forth the required process steps or methodology.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 1631

Claims 6-9 are rejected under 35 U.S.C. 102(b) as being anticipated by the OMIM (the Online Mendelian Inheritance in Man).

OMIM is a database catalog of human genes and genetic disorders. The database contains textual information and references as well as links to resources such as MEDLINE and sequence records in the Entrez system. It can be searched in a variety of ways including search by key word (text) and entry number. Sequence comparisons can be made via links to Entrez from OMIM.

Using entry #191100 for tuberous sclerosis as an example, this entry has links to synonymous genes (see first page) and lists synonymous terms (see section on nomenclature on eighth page).

The OMIM knowledge database appears to possess all of the object and relationship limitations required by the claims.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marianne P. Allen whose telephone number is 571-272-0712. The examiner can normally be reached on Monday-Thursday, 5:30 am - 1:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Woodward can be reached on 571-272-0722. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Marianne P. Allen*  
Marianne P. Allen  
Primary Examiner  
Art Unit 1631  
5/18/04



Application/Control Number: 10/077,662  
Art Unit: 1631

Page 8

mpa